

What is claimed is:

1. A packing apparatus comprising:

a matrix former having a product contact surface and an at least one
sidewall, said sidewall being movable relative to said product contact surface,
5 said matrix former being pivotable about an axis parallel to and spaced from said
product contact surface between a first position wherein said product contact
surface faces in a first direction and a second position wherein said product
contact surface faces in a second direction; and

a platform comprising a box support having a box contact side and a box
10 holder for holding a box having a closed bottom and open top on said box
support, said platform being pivotable between a first angular orientation and a
second angular orientation.

2. The packing apparatus of claim 1, wherein said first direction and said second
15 direction are separated by an angle of about 180 degrees.

3. The packing apparatus of claim 1, wherein said box support includes a positioning
device for positioning a box on said platform.

- 20 4. The packing apparatus of claim 3, wherein said box support includes at least one
retaining member for retaining the box on said box support.

5. The packing apparatus of claim 3, wherein said box support includes at least one gripper for gripping an edge of the box.

6. The packing apparatus of claim 1, including a feed conveyor for feeding boxes to said box support.

7. The packing system of claim 6, including a discharge conveyor for receiving boxes from said box support.

8. A packing apparatus, comprising:

a matrix former having a product contact surface pivotable about a first axis between a first position wherein said product contact surface faces in a first direction and a second position wherein said product contact surface faces in a second direction;

a platform pivotable about a second axis spaced from said first axis, said platform pivotable between a first position wherein said platform faces in a first direction and a second position wherein said product contact surface faces in a second direction;

a lift cage moveable between and aligned with said platform in said second position and said product contact surface in said first position, said lift cage for moving a box therebetween; and

a lowerator moveable between and aligned with said product contact surface in said second position and a discharge roller.

9. The packing apparatus of claim 8, wherein said matrix former includes at least one sidewall movable relative to said product contact surface.

5 10. The packing apparatus of claim 8, further comprising at least one guide track for guiding the movement of said lift cage between said platform in said second position and said product contact surface in said first position.

10 11. The packing apparatus of claim 10, further comprising a drive belt extending between a first wheel and a second wheel and a drive operably coupled to said drive belt, wherein said lift cage is coupled to said drive belt.

12. The packing apparatus of claim 11, wherein said drive belt is parallel to at least a portion of said at least one guide track.

15

13. The packing apparatus of claim 8, wherein said lift cage includes first and second side supports, wherein the box is receivable between said side supports.

20 14. The packing apparatus of claim 13, wherein at least one of said side supports includes moveable plates that engage a side of the box thereby securing the box between said side supports.

15. The packing apparatus of claim 8, wherein at least one of said side supports includes fingers that grip an edge of the box thereby maintaining alignment of the box with said product contact surface in said first position.

5 16. The packing apparatus of claim 8, wherein said platform includes a gripper for securing the box to said platform.

17. The packing apparatus of claim 8, further comprising at least one box positioning surface extending outwardly from and perpendicular to said platform.

10

18. The packing apparatus of claim 8, wherein said platform includes rollers aligned with said second axis.

15

19. The packing apparatus of claim 8, wherein said lowerator comprises a carriage for receiving a packed box from said matrix former.

20. The packing apparatus of claim 19, further comprising at least one guide track for guiding the movement of said carriage between said product contact surface in said second position and said discharge roller.

20

21. The packing apparatus of claim 20, further comprising a discharge conveyor for receiving boxes from said discharge roller.

22. The packing apparatus of claim 8, further comprising a feed conveyor for feeding boxes to said platform.

23. A method of packing a product comprising the steps of:

- 5 providing a first platform having a product support surface pivotable about a first axis between a first position and a second position;
- placing a product to be packaged on the product support surface in the first position;
- providing a second platform including a box support pivotable about a
10 second axis spaced from the first axis, the second platform pivotable between a first position and a second position;
- receiving a box having a closed bottom and an open top on the second platform, the closed bottom adjacent the platform;
- securing the box to the second platform;
- 15 aligning the open top with the first platform in the first position by pivoting the second platform to the second position;
- providing a first lift aligned with and extending between the first platform in the first position and the second platform in the second position;
- providing a second lift aligned with and extending between the first
20 platform in the second position and a discharge roller;
- moving the first lift from the second platform in the second position towards the first platform in the first position until the product passes through the open top of the box;

aligning the closed bottom of the box with discharge roller by pivoting the first platform to the second position;

moving the second lift from toward the discharge roller until the closed bottom contacts the discharge roller; and

5 releasing the box onto the discharge roller.